REMARKS

This application has been carefully reviewed in light of the Office Action dated December 3, 2003. By way of this amendment, claims 11 and 12 have been amended and new claim 20 has been added. Claims 11-20 are currently pending in the application. Applicant hereby requests further examination and reconsideration in view of the following remarks.

The Examiner has rejected claims 11, 12, 18 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Landaas in view of McDermott. This ground of rejection is respectfully traversed.

Independent claim 11 recites a system for cleaning a structure. The system comprises a cleaning gas source and a liquid source. A mixing chamber is provided having a first inlet, a second inlet and an outlet. The first inlet is connected to the cleaning gas source, and the second inlet is connected to the liquid source. In addition, the second inlet includes a spray head for spraying liquid droplets into the mixing chamber. The system also comprises a means for coupling the mixing chamber outlet to the structure to be cleaned.

Landaas discloses a system having an expansion separator 2 that supplies gas to a mixing head 18 via a pump 3 and liquid to the mixing head 18 via a pump 12. The mixing head 18 combines the gas and liquid. The mixture is directed to a fluid system A, B for treating internal surfaces thereof. As recognized by the Examiner, the mixing head 18 does not include a spray head for spraying liquid droplets as required by claim 11. However, the Examiner contends that it would have been obvious to modify Landaas with the liquid misting means disclosed by McDermott for the purpose of creating a cleaning liquid mist or "cloud" to achieve improved or more uniform cleaning.

McDermott discloses an apparatus for cleaning a gas turbine engine in which a manifold ring 20 having a plurality of spray nozzles is

positioned in front of the gas turbine engine for spraying a solvent into the engine.

Although the manifold ring 20 and the spray nozzles arguably define a "spray head" used in a cleaning apparatus, the teachings of McDermott and Landaas are not compatible. The so-called spray head of McDermott is a large ring designed to spray solvent directly into a zone 22 of the gas turbine engine that is located between the hollow cylindrical portion 2 and the bell-mouth 4. For this reason, the ring 20 is larger than the periphery of the bell mouth. Such a large ring would not lead one of ordinary skill in the art to consider modifying the mixing head 18 of Landaas. McDermott also differs from Landaas in that solvent is sprayed directly into the apparatus to be cleaned (the engine), where it then mixes with air flowing into the engine. This is contrary to Landaas in which gas and liquid are mixed in the mixing head 18 prior to be delivered to the article to be cleaned. These differences teach away from making the modification suggested by the Examiner.

Furthermore, applicant respectfully submits that modifying Landaas in view of McDermott would not achieve improved or more uniform cleaning as suggested by the Examiner. As pointed out by the Examiner, Landaas discloses a mixture of gas and liquid in the form of an aerosol fog. In fact, lines 5-8 in column 4 of Landaas state that liquid is brought to aerosol fog form after the mixing head 18. Because Landaas already teaches producing an aerosol fog downstream of the mixing head 18, there would be no reason or motivation to modify the mixing head to create a cloud. The cloud would simply be redundant. Accordingly, one of ordinary skill in the art would not be motivated to modify Landaas in view of McDermott in the manner suggested by the Examiner

For the above reasons, it is respectfully submitted that independent claim 11 is allowable over Landaas in view of McDermott. Claims 12, 18 and 19 depend from claim 11 and are thus also believed to be allowable. Furthermore,

at least some of these dependent claims set forth limitations not met by the prior art. For instance, claim 12 now recites a first control valve located between the cleaning gas source and the first inlet and a second control valve located between the liquid source and the second inlet. Landaas does not show such control valves. The Examiner indicates that the "control arrangement" 17 is a valve coupling the coupling the gas source and the mixing chamber, but there is no indication in Landaas that this element—or any of the control arrangements—is actually a valve. Column 3, lines 32-35 of Landaas state "control arrangements 4, 5, 15, 17, 19, 20 can be arranged for temperature and pressure at various points 4, 5, 15, 17, 19, 20 in the fluid flow with the aim of monitoring and controlling the treatment." Column 4, lines 37-39 further state that "temperature and pressure are measured by means [sic] suitable means at different points 4, 6, 15, 17, 19, 20 in the fluid flow" (emphasis added). Thus, the control arrangements are means for measuring temperature and pressure; there is no suggestion that they are control valves.

Regarding claim 19, neither Landaas nor McDermott suggest cleaning internal surfaces of a gas turbine bucket, which is shown in Figure 2 of the present application. McDermott teaches cleaning a gas turbine engine, but not internal surface of engine buckets.

The Examiner has rejected claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Landaas in view of McDermott and further in view of Bergman et al and claims 14-17 under 35 U.S.C. § 103(a) as being unpatentable over Landaas in view of McDermott and further in view of Viator et al. These grounds of rejection are respectfully traversed.

The Examiner relies on Bergman et al and Viator et al for teaching use of gas filters and heaters and heat exchangers, respectively. As such, neither of these two references overcomes the above-described deficiency of the Landaas and McDermott combination of not disclosing the system of claim 11.

Thus, Landaas and McDermott modified by Bergman et al and Viator et al, still fail to render claim 11 unpatentable. Because they all depend from claim 11, it is submitted that claims 13-17 are also allowable of the prior art.

New claim 20 has been added to further distinguish the present invention over the prior art. Namely, claim 20 recites that the system of claim 12 further comprises a first controller for controlling the first control valve and a second controller for controlling the second control valve. The prior art of record does not teach or suggest such controllers

In view of the above, it is submitted that the claims are in condition for allowance. Reconsideration of the objections and rejections is requested. Allowance of claims 11-20 at an early date is solicited.

Respectfully submitted,

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Date

Patrick R. Scanlon
Patrick R. Scanlon
Reg. No. 34,500
207-791-1276